

Remarks

Thorough examination by the Examiner is noted and appreciated.

The claims have been amended and new claims added to more clearly claim Applicants invention.

Support for the amended and newly drafted claims are found in the original claims and/or the Specification. No new matter has been added. For example support for amendments in claims 1, 9 and 13 are found in the Specification, for example at paragraphs 0033, 0034, and 0035, as well as elsewhere in the original claims and/or Specification:

"[0033] The structural details of the bake plate 12 are shown in Figure 1. The bake plate 12 includes a thermally-conductive plate body 14. Interior heating elements (not shown) provided in the plate body 14 are operably engaged by the track system controller 36 for heating the plate body 14 to a selected set point temperature, typically in conventional fashion. The plate body 14 has an **upper heating surface** 16 from which heat radiates by convection during operation of the bake plate 12. An annular wafer guide 20 extends from an annular base 22 which circumscribes the heating surface 16.

[0034] The temperature-sensing apparatus 26 includes a pyrometer support 28, from which extends multiple pyrometers 30. the pyrometers 30 extend

through respective pyrometer openings 32 that extend through the plate body 14. The pyrometers 30 open onto the heating surface 16 and communicate with the heating space 18. Typically, the temperature-sensing apparatus 26 includes at least three pyrometers 30 which are substantially evenly distributed on the heating surface 16 **to accurately measure the temperature of the heating surface 16**, as hereinafter described.

[0035] As further shown in Figure 1, in operation of the bake plate 12, which will be hereinafter further described, a wafer 42 (in phantom) normally rests on the base 22, inside the wafer guide 20. **A heating space 18 is defined between the wafer 42 and the upper heating surface 16 of the plate body 14.** When the wafer 42 is seated in the normal position on the base 22, heat radiates upwardly from the heating surface 16 and heats the wafer 42 by convection through the heating space 18. The wafer 42, wafer guide 20 and base 22 prevent most of the heat from escaping the heating space 18, such that the wafer 42 is heated to the set point temperature, which is selected typically using the track system controller 36."

Claim Rejections under 35 USC 102(b)

Claim 13 stands rejected under 35 USC 102(b) as being anticipated by Tam et al. (US 4,507,078).

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Tam et al. disclose a wafer handling apparatus and method that insures proper centering of a wafer for a baking process and for transferring heat to a wafer (see Abstract).

Tam et al. disclose optical sensors that detect the leading edge of the wafer and signal a controller to slow down the speed of conveyor drive belts to control the speed the wafer enters the work station (e.g., col 2, lines 45-50; col 8, lines 10-31).

Tam et al. also disclose an apparatus for re-positioning the wafer relative to a heating plate surface in response to pyrometers **measuring a wafer temperature** (col 6, lines 23-29; col 7, lines 17-29). Based on the **rate of wafer temperature change**, the wafer is repositioned (up or down) relative to the hot plate heating surface (col 6, lines 50-53).

Thus Tam et al. does not disclose several aspects of Applicants disclosed and claimed invention including "determining a change in temperature of said bake plate heating surface over a specified time interval" and "determining a subsequent process step in response to said wafer position selected from the group consisting of aborting said wafer baking process and proceeding with said wafer baking process".

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Tam et al. is clearly insufficient to anticipate Applicants disclosed and claimed invention.

Claim Rejections under 35 USC 103(a)

Claims 1-12, and 14-20 stand rejected under 35 USC 102(b) as unpatentable over Colelli, jr. et al. (US 6,100,506) in view of Tam et al. (US 4,507,078).

Applicants reiterate comments made with respect to Tam et al., above.

Colelli, jr. et al. disclose a method and apparatus for controlling individual heating zones on a hot plate during a wafer baking process by using pyrometric temperature sensors to **monitor a wafer surface temperature** (see Abstract). Individual hot plate heating zone temperatures are adjusted based on **measurement of the wafer temperature**. The pyrometric temperature sensors are positioned **above the wafer surface** (see col 4, lines 59- 64). The wafer is positioned in a **predetermined** adjusted position **on** the hot plate.

There is no apparent reason to combine the teachings of Tam et al. and Colelli, jr. et al. The apparatus and methods of Tam et al. and Colelli, jr. et al., work by a different principal of

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operation. The apparatus of Tam et al. **measures the wafer temperature to determine whether the wafer should be raised or lowered relative to the hot plate heating surface** to achieve a desired wafer temperature. On the other hand, the apparatus of Colelli, jr. et al. **measures the wafer temperature to determine temperature adjustment the individual heating zones of the hot plate.** Modifying the teachings of either Tam et al. or Colelli, jr. et al. in an effort to reproduce Applicants disclosed and claimed invention would destroy the principal of operation of both Tam et al. and Colelli, jr. et al.

Even assuming *arguendo* a proper motivation to combine the teachings of Tam et al. and Colelli, jr. et al., such combination does not produce Applicants disclosed and claimed invention.

Neither Tam et al. and Colelli, jr. et al. suggest or disclose an apparatus or method for **monitoring a temperature of a bake plate heating surface**, as Applicants have disclosed and claimed, or **determining a wafer position in response to a temperature change over time of the bake plat heating surface.**

"If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie obvious.*" *In re Ratti*, 270 F.2d 810, 123, USPQ 349 (CCPA 1959).

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"If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification." *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

Since the teachings of Tam et al. and Colelli, jr. et al., or any combination thereof, are insufficient to make out a *prima facie* case of obviousness with respect to Applicants independent claims, neither are such teachings sufficient to make out a *prima facie* case of obviousness with respect to Applicants dependent claims.

The Claims have been amended and new claims added to clarify Applicants' disclosed and claimed invention. A favorable reconsideration of Applicants' claims is respectfully requested.

Based on the foregoing, Applicants respectfully submit that the Claims are now in condition for allowance. Such favorable action by the Examiner at an early date is respectfully solicited.

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In the event that the present invention as claimed is not in condition for allowance for any reason, the Examiner is respectfully invited to call the Applicants' representative at his Bloomfield Hills, Michigan office at (248) 540-4040 such that necessary action may be taken to place the application in a condition for allowance.

Respectfully submitted,

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